

wherein the foamed pressure sensitive adhesive article has a gel content of less than 25 percent.

13. A foamed pressure sensitive adhesive article, the article comprising:

at least one styrenic block copolymer and at least one polyarylene oxide; wherein the article is a pressure sensitive adhesive foam that has a shear holding power of at least 3000 minutes on anodized aluminum at a temperature of 70°C as determined by ASTM 3654 utilizing a sample with dimensions of 25.4 mm by 12.7 mm supporting a 500 g mass, and a gel content of less than 25 percent of crosslinkable material;

and wherein the foamed pressure sensitive adhesive article comprises one or more expanded polymeric microsphere(s).

#### **Remarks**

The Examiner has rejected claims 1-16 under 35 U.S.C. Section 103(a) as being unpatentable over United States Patent No. 6,103,152 (hereafter referred to as the '152 patent). In making this rejection, the Examiner has also cited to United States Patent No. 4,104,323 (hereafter referred to as the '323 patent) as evidence of the state of the art. Applicants respectfully disagree with this conclusion that the claimed invention is obvious, and assert that the '152 patent does not teach or suggest the claimed invention, in particular the claimed invention as herein amended.

Applicants first note that a reference must be an enabling disclosure of the claimed invention for it to be applied as a rejection, and a reference is considered "enabling" only if one of skill in the art could have combined the publication's teachings with the common knowledge

F.2d 531, 226 USPQ 619 (Fed. Cir. 1985). Where a process for making a compound or composition is not developed until after the date of the invention, the mere naming of a compound in a reference, without more, cannot constitute an adequate description. MPEP Section 2121.02, *In re Hoeksema*, 399 F.2d 269, 158 USPQ 596 (CCPA 1968). A reference fails to contain an "enabling disclosure" if attempts to make the compound or composition were unsuccessful. *Id.*

In the present situation, the '152 patent fails to teach or make obvious the claimed invention, and any expansion of the teachings of the '152 patent are in conflict with the requirement that the '152 patent must enable one of skill in the art to practice the claimed invention. Applicants do not challenge the importance of the invention disclosed in the '152 patent, or the enablement of its claims. Indeed, Applicants believe the '152 patent broadly teaches and claims polymeric foams. Rather, Applicants assert that they have developed an improvement upon the disclosure and claims of the '152 patent, and assert that this improvement is neither anticipated nor made obvious by the '152 patent. In particular, Applicants have created a pressure sensitive foam composition that requires less crosslinking than prior foam compositions, or even no crosslinking, while having favorable high temperature performance.

As discussed throughout the specification of the present application, the combination of a polymeric mixture containing at least one styrenic block copolymer and at least one polyarylene oxide polymer, along with one or more expandable polymeric microspheres, results in a composition having favorable high temperature performance without the requirement of significant crosslinking. The inclusion of the requirement that the composition have less than 25 percent gel content incorporates the characteristic that the material has relatively little

achieve high cohesive strength and or high modulus. See, e.g., '152 patent, column 2, lines 5-11.

Indeed, the '152 patent teaches only implementations wherein the article produced is crosslinked using an electron beam processing unit. *See, e.g.*, column 14, lines 36 to 40. The present invention improves upon the '152 patent by disclosing and claiming a foam that is produced without the need to be crosslinked, in particular a foamed pressure sensitive adhesive that contains a mixture of styrenic block copolymer along with polyarylene oxide polymer, yet which does not require crosslinking to have high temperature performance.

The '152 patent does not teach a pressure sensitive adhesive containing a polyarylene oxide polymer. Although the '152 patent discloses foams containing polyphenylene oxide alloys, Applicants believe such alloys to be distinct from the polyarylene oxide polymers as currently claimed, which are not alloys. Even if these two materials are deemed to be equivalent, the polyarylene oxide alloys disclosed in the '152 patent are taught in terms of acrylate-insoluble polymers, which are typically not adhesive as required by the current claim invention. *See* '152 patent, column 7, lines 13 to 33.

Also, even if the ingredients of the foams in the '152 patent and the present application are the same, there is no teaching in the '152 patent that would permit one of skill in the art to practice the entire claimed invention of the present application. Applicants specifically call the Examiner's attention to the fact that the process temperatures disclosed in the '152 patent would not suffice to produce the foamed pressure sensitive adhesive containing polyarylene oxide polymers, which have a glass transition temperature typically in excess of 175° C. *See*, for example, column 14, lines 36 to 40, which teach extruder temperatures of 93.3° C -- too low to melt process typical polyarylene oxide polymers. In contrast, the present application teaches screw temperatures significantly higher than those taught in the '152 patent. *See* page 22, line 4.

but doing so according to the teachings of the '152 patent would result in the collapse of expanded polymeric microspheres used to make the foam.

In summary, the '152 patent fails to teach or suggest the present claimed invention, and any expansion of the '152 patent will be in violation of the requirement that the prior art enable the claimed invention. Most notably, the prior art '152 patent fails to teach how a pressure sensitive adhesive article can be made to contain polyarylene oxide polymers at a sufficient temperature to blend the ingredients without also destroying the microspheres incorporated into the adhesive.

The Examiner has also cited to the '323 patent as evidence for the state of the art. Although this patent teaches the combination of polyarylene ether resin and a styrene-diene block copolymer, it utterly fails to teach how this composition can be made into the foamed pressure sensitive adhesive of the present invention.

On the basis of the foregoing, Applicants believe the claims are in a condition for allowance. Applicants' undersigned attorney invites the Examiner to contact him with any questions.

Respectfully submitted,

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By their attorneys,

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Dated: \_\_\_\_\_

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D.M. PAULY

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

1. A foamed pressure sensitive adhesive article, the article comprising:
- a) a polymeric mixture containing at least one styrenic block copolymer and at least one polyarylene oxide polymer; and
  - b) one or more expandable polymeric microsphere(s);

wherein the foamed pressure sensitive adhesive article has a gel content of less than 25 percent.

13. A foamed pressure sensitive adhesive article, the article comprising:
- at least one styrenic block copolymer and at least one polyarylene oxide; wherein the article is a pressure sensitive adhesive foam that has a shear holding power of at least 3000 minutes on anodized aluminum at a temperature of 70°C as determined by ASTM 3654 utilizing a sample with dimensions of 25.4 mm by 12.7 mm supporting a 500 g mass, and a gel content of less than 25 percent of crosslinkable material;

and wherein the foamed pressure sensitive adhesive article comprises one or more expanded polymeric microsphere(s).